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Serial Number:	10/820,561	)	
Filing Date:	4/8/2004	)	Examiner: Armando Rodriguez
Applicant:	Tong Zhang	)	
Appn. Title:	Single-Mode Operation and Frequency Conversions for Solid-State Lasers	)	GAU: 2828
Fax:	571-273-8300 (Attn: Office of Petitions)		

Fax via computer on November 15, 2010
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Request for Reconsideration of Petition under 37 CFR (b)

Sir:

This letter is in reply to the Office action of "Petition Decision" dated October 8, 2010. The Office action is in response to applicant's petition filed September 7, 2010, to revive the above-identified application.

In the last section of the present Office action, i.e., the section of "The present petition and amendment", it states that "As to item (1), the Examiner has reviewed the Amendment filed February 16, 2010, and concluded that the Amendment fails to place the application in condition for allowance. ---". However, the Examiner in his comments has made a misunderstanding in laser physics and a basic mistake in the principle and concept about a patent.

First at all, as mentioned before the cited prior art of Siebert (US 3582815) is totally not relevant to the present case. There is a fundamental difference in the laser physics and in the approach in realizing single axial mode operation between a continue-wave (CW) solid-state laser and a pulsed solid-state laser. Siebert's patent is for the case of pulsed solid-state lasers,

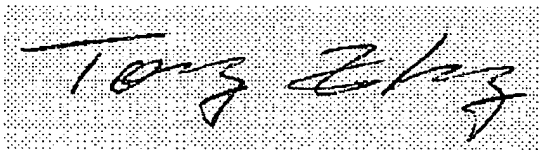
or solid-state lasers operating in a pulsed mode, but not fitting for the case of CW solid-state lasers. The above-identified application is for the case of CW solid-state lasers.

Pulsed solid-state lasers do not have the so-called green problem. In other words, it is pretty easy and does not need some special approach as required in the CW mode operation, in order to realize single axial mode operation, or single longitudinal mode (SLM) operation. As a result, therefore, SLM operation with the pulsed mode has been realized long before that with the CW mode.

The so-called "green problem" is resulted from "spatial interference effect" or "spatial hole burning effect" and only exists in CW solid-state lasers. Only CW solid-state laser needs to eliminate or minimize such an effect in order to realize SLM operation. The relevant explanation and description have been clearly presented in the document of "Status of claims and support for claim changes" submitted on February 10, 2010, particularly the section 5 "Description for Claim 10" and section 6 "Reason for Patent." Please note that there are three limitations in claim 10 but not including SLM operation. (See attached bellow)

As to the basic mistake in the principle and concept about a patent, there are many valid patents for laser operations and for single axial mode operation. However, the term of "laser operations" or "single axial mode operation" is not forbidden to obtain a patent.

Applicant / petitioner hereby respectfully petitions the Commissioner to revival the above application due to unintentional delay under 37 CFR (b) and believes that the Amendment filed February 16, 2010 would place the application in condition for allowance.



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ATTACHMENT

Status of claims and support for claim changes February 10, 2010

【5. Description for Claim 10】

In the approach of claim 10 a formation of wavelength selectivity with low insertion losses is used in cooperation with a thin gain zone that leads to SLM operation. Therefore, the laser arrangement clearly consists of three limitations in claim 10:

(1) a laser gain region is very thin;

(2) the thin gain region is located adjacent to or in contact with an end laser cavity mirror; and

(3) a formation of wavelength selectivity with low insertion losses is placed within a laser cavity.

The function of the limitation (1) and (2) in the laser arrangement is to create a circumstance to promote SLM operation. In such a circumstance, all possible longitudinal modes have about an equal chance to extract the available gain. One lucky mode that begins to oscillate first wins the "mode-competition" and deprives the others of the gain needed to oscillate, thereby encouraging or enforcing single-longitudinal-mode (SLM) operation.

On the other hand, the effect caused by a thin gain region in contact with an end mirror is equivalent to that caused by short cavity configurations, in which those potential oscillating longitudinal modes are separated substantially. In such a case, the required resolving-power of a frequency-selective form will be largely relaxed and it becomes possible to use a formation with low insertion losses in realizing single-mode operation.

【6. Reason for Patent】

None of the searched prior arts alone or combination discloses the claimed method imitations presented in independent claim 1 or claim 10, respectively, having the combined recited steps for forming a laser cavity to obtain stable single longitudinal mode operation in order to solve the well-known so-called "green problem". In particular, nobody in the prior art has ever suggested and considered the use of a formation of wavelength selectivity with low insertion losses in cooperation with a thin gain zone, or the use of a spectral filter in cooperation with a beam expander to reduce the insertion losses, leading to stable single longitudinal mode operation.